

Propidium iodide *BioChemica*

3,8-Diamino-5-(3-diethylaminopropyl)-6-phenyl-phenanthridinium iodide methiodide

Product-No. A2261

Description

Formula:	C ₂₇ H ₃₄ I ₂ N ₄
Molecular weight:	668.40 g/mol
CAS-No.:	[25535-16-4]
Assay (HPLC):	min. 95 %
Emission maximum:	617 nm
Extinction maximum:	535 nm
Storage:	2-8°C, protected from light
recommended stock solution: (according to ref. 5)	1 mg/10 ml in water (0.15 mM final) Aliquot into aluminium foil-wrapped tubes. Store up to one year at -20°C
recommended working solution: (according to ref. 5)	1:1000 dilution in PBS Aliquot into aluminium foil-wrapped tubes. Store up to 6 months at 2-8°C

Comment

Propidium iodide (PI) is - like ethidium bromide (EtBr) - a DNA intercalator and was developed as an anti-Trypanosom reagent, but never applied as such (1). Today, this fluorescence DNA dye is mainly applied in 'flow cytometry' (2, 3). At a concentration of 1 µg/ml, probably all DNA binding sites are saturated. PI will be excluded by living cells. Hence, only dead or dying cells will be stained. Propidium iodide can be excited by light with wavelenghts in the visible range and bleaches slowly, having clear advantages over DAPI (4).

Stability

Depending on the reference, there are many recommendations of how to store solutions of Propidium iodide. According to ref. (4) store at +4°C (4) or at room temperature (3) or at -20°C (5) protected from light. The informations on the stability of solutions varies from 4-6 months (4) to unlimited (3). It seems that the buffer used is of great importance.

Application and Literature

- (1) Waring, M. (1975) Ethidium and Propidium in *Antibiotics* **Vol. III**, pages 141-165; (J.W. Corcoran & F.E. Hahn eds.) Springer-Verlag.
- (2) Pollack, A. & Ciancio, G. (1990) *Methods Cell Biol.* **33**, 19-24. Cell cycle phase-specific analysis of cell viability using Hoechst 33342 and Propidium iodide after Ethanol preservation.
- (3) Krishan, A. (1990) *Methods Cell Biol.* **33**, 121-125. Rapid DNA content analysis by the Propidium iodide-hypotonic citrate method.
- (4) Running, M.P. *et al.* (1995) *Methods Cell Biol.* **49**, 217-229. Confocal microscopy of the shoot apex.
- (5) Ausubel, F.A., Brent, R., Kingston, R.E., Moore, D.D., Seidman, J.G., Smith, J.A. & Struhl, K. (eds.) (1995) *Current Protocols in Molecular Biology*, Page 14.7.10 (Suppl. 31) Greene Publishing & Wiley-Interscience, New York.

Caution: Propidium iodide is hazardous, like all chemicals binding selectively to DNA. Propidium iodide (LD₅₀ 16 mg/kg, subcutaneous, mouse) is more toxic than ethidium bromide (LD₅₀ 110 mg/kg, subcutaneous, mouse).